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Ten years after: a systematic review of the literature on postsecondary education and disability from 2013 to 2022

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This article presents the results of a systematic review of the literature related to postsecondary education and disability published in peer-reviewed articles from 2013 to 2022. It replicates a prior investigation that examined the literature published on this topic between 1952 and 2012. Results indicated a nearly 200% increase in the number of published articles in this 10-year period, and moreover, a nearly 1,400% increase in articles that were based outside of the United States. Articles were published in 636 unique journals. There was also an increase in the number of articles presenting original data. Although most of the articles featured descriptive designs, there was also an increase in articles using mixed methods, single subject, or group designs. Comparisons across the two time periods of investigation are presented, as are implications for the field.

KEYWORDS

postsecondary education, disability, systematic review, *PASS* Taxonomy, higher education, literature review

Introduction

In 2018, Madaus et al. (2018) published the results of a systematic review of the professional literature of 1,036 peer-reviewed articles related to postsecondary education and disability published between 1952 and 2012. The articles were published in 233 unique journals, most frequently in the *Journal of Postsecondary Education and Disability* (*JPED*; 27%), the *Journal of Learning Disabilities* (*JLD*; 6.2%) and the *Journal of College Student Development* (4.7%). Approximately 60% of these presented original data (rather than descriptions of programs and practices or legal policy descriptions that did not provide data). Of the articles presenting original data, 42% focused on describing disabled student experiences or student demographic profiles, followed by articles focused on program and institutional supports (29%). Most of those that presented original data (55%) employed descriptive quantitative methods, with only 6% using group or single-subject designs to demonstrate causality. Nearly three-quarters of the articles that presented original data (71%) were United States based, followed by 12% from Great Britain, 8% from Canada, and 8.5% from other international locations.

Based on these results, Madaus et al. (2018) offered an overall analysis of the state of the research base in the field up to 2012. Many articles did not provide explicit information about samples and locations. Moreover, when locations were described clearly, nearly two-thirds of the publications concentrated on 4-year institutions, overlooking the experiences of many disabled students in 2-year schools. There was a relatively limited range of topics studied, and given the small number of research-based publications and the dearth of studies providing data on which practices worked with particular student populations and in which settings, few conclusions of significance could be drawn. It is important to note the analysis did not include literature on inclusive postsecondary education (IPSE) programs, as they were nascent and the literature base scant during the data collection phase of the Madaus et al. (2018) study.

In the decade since this wide-ranging review, several noteworthy developments have significantly impacted the field. These include a continued increase domestically in the number of disabled students attending college and corresponding growth of disabled student service provision; the implementation of the regulations of the Americans with Disabilities Amendments Act of 2008; rapid changes in technology impacting both accessibility and the delivery of instruction; the growth in IPSE programs; a global pandemic that temporarily, but dramatically changed the delivery of instruction and disabled student supports in higher education; and a shift away from a the medical model of disability to a social justice approach regarding service provision (Madaus and Kunkes, 2023). Internationally the United Nation's Convention on the Rights of Persons with Disabilities increasingly impacts the identification and education of individuals with disabilities worldwide as more nations sign on (United Nations General Assembly, 2006). Given these developments, and because refereed publications define which topics are important, which are ignored, and which influence practice, policy, and professional development in a field (Plotner et al., 2011; McFarland et al., 2013; Peña, 2014), we conducted an update of the Madaus et al. (2018) systematic review to examine trends in the professional literature during the ensuing decade.

The following research questions guided our inquiry: What journals and disciplines published work relevant to disabled college student services? What topics were investigated? What samples were studied? And what research methodologies were used? Additionally, given that this is an update of the prior data set, we sought to determine any similar or shifting trends over time by comparing finding from the previous review with this updated analysis.

Methods

To answer the research questions, a systematic review was conducted adapting the methodology utilized by Madaus et al. (2018). The methods were guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards (Moher et al., 2009), which are designed to minimize bias and ensure transparency when conducting systematic reviews. The Madaus et al. (2018) procedures were adapted based on trends in the accessibility services profession and the results of the original review. For example, the literature on IPSE programs (Grigal et al., 2022) was emerging when the original analysis was conducted so it was not examined in the prior study. Given the recent proliferation of IPSE, the research team included these publications in the present review to provide a more global depiction of the field of disability and higher education. In addition, a choice was also included as part of the gender question to move away from a binary option to be broader and more inclusive.

Inclusion criteria

The Madaus et al. (2018) inclusion criteria were utilized and updated to include IPSE programs. To be included, articles had to be published in English in a peer-reviewed journal during the years 2013–2022. All publications addressed postsecondary education for disabled students, broadly defined to include student experiences and perceptions, programs/accommodations/services for students, institutional efforts to promote disabled student access (including professional staff experiences and perceptions), and instruction of disabled students (including faculty experiences and perceptions). Studies about disabled graduates or non-completers were included. Programs for accepted students and for those in IPSE programs met these criteria while articles primarily about secondary transition or dual-enrollment transition programs funded by local education agencies (LEAs) were excluded.

After reviewing the initial Boolean results, the research team clarified the inclusion criteria. Many articles were found to gather a cross-section of college students, to use a screener, and then compare students based on the screening results. As it was unclear if these students had the disability under study, these articles were excluded from the analysis. Further, samples of students self-reporting a disability (e.g., Students in Introduction to Psychology classes being surveyed and asked to self-report a disability) were excluded unless disability status was corroborated by the publication researchers. Articles about disabled faculty and/or professional staff that did not focus on disabled students were also excluded.

Article gathering

To gather articles for this review, the ERIC, Academic Search Premier, PsycInfo, and Medline databases were searched for articles published between 2013 and 2022, in English and in peer-reviewed journals. The original Boolean search string was utilized for continuity: ("college student" or "university student" or "postsecondary education" or "college admission" or "higher education" or "student affairs" or "student services" or "student personnel") AND (disabilit* or "hearing impair*" or deaf or disabled or handicap or ADHD or ADD or dyslex* or blind or disabilities or accommodation or "mental illness" or "mobility impairment" or "visual impair*"). In addition to the Boolean search, there were two other sources of articles. The first was the articles published in *JPED*, the sole journal devoted exclusively to this field. The other was the secondary analyses from the original systematic review that investigated articles from 2013 to 2015.

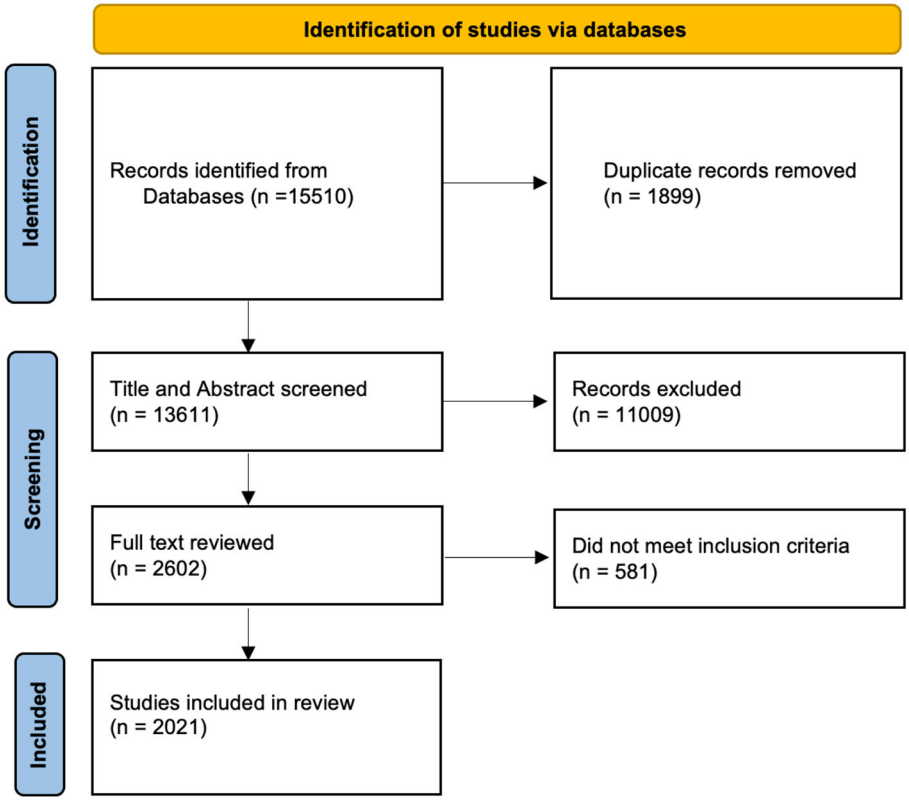

FIGURE 1
PRISMA diagram.

When these secondary analyses were conducted, articles published after the original review (i.e., post-2012) were examined and these were included in the database of publications for the present systematic review. These three sources were utilized to ensure the full breadth of articles on the topic were examined.

Title and abstract review

After the articles from the sources were compiled, a total of 15,510[1] were reviewed and 1,899 duplicates were removed resulting in 13,611 remaining as noted in the PRISMA diagram (Figure 1). Titles and abstracts were reviewed to determine if the articles met the inclusion criteria, resulting in the removal of 11,009 not meeting criteria. All articles were double coded during the title and abstract review with a reliability of 87.7%. A third member of the team served as a tiebreaker for any disagreements.

1 The authors completed a secondary analysis (Madaus et al., in press) prior to writing this article that focused on students with physical disabilities. That secondary analysis did not include articles published in 2022 so the number of articles at each phase and the reliability reported across the two articles will differ slightly.

Full-text review

Following the title and abstract review, the remaining 2,602 articles were uploaded to a cloud-based file-sharing system. Each was assigned a code so its citation information could be cross-referenced with the full-text review and data coding information. A member of the research team coded information about the publication in an online data-gathering instrument. The data-gathering instrument used in the Madaus et al. (2018) review was adapted by simplifying many of the previous coding options to increase reliability. The original coding tool had many open-ended items, which were made into Likert-style items (e.g., ranges for total *n* in the study) for the new version of the coding instrument.

The first question was a filter to ensure the article met the study's inclusion criteria. If the article met inclusion criteria, it was fully reviewed. If not, it was excluded. At this stage, a total of 581 articles were excluded from the full text review. If the article met inclusion criteria, the instrument item identified whether the study presented original data, which was defined as qualitative, single subject design, group design, quantitative, or mixed methods data and including a description of the procedures to collect and analyze data. Secondary analyses from large datasets (e.g., Baccalaureate and Beyond, National Longitudinal Transition Study-2) were defined as original data and included. The type of research methodology utilized, and various sample demographic information were also coded. Finally, an updated version of the

PASS Taxonomy developed by the research team (Dukes et al., 2017) was utilized to provide information about the topics under study. Due to the volume of publications, a subset of the articles (25%) were randomly selected to be double-coded and 94.2% reliability was achieved. A third research team member served as a tiebreaker to resolve disagreements which brought agreement to 100%.

Results

A total of 2,021 articles remained following the full-text review. These were published in 636 unique journals. See Table 1 for the most common journal outlets. The largest share of the articles was published in *JPED* (n = 228; 11%), with the next closest journal, *Disability & Society* (n = 71; 4%).

Topics studied

Table 2 illustrates the topics addressed sorted by the *PASS* domains. The majority were student-level studies (n = 1,323, 65.5%). Subcategories within this domain included 878 articles concerning student experiences, 427 that provided student profiles, 212 on student self-determination in higher education, 198 related to learning/study skills, and 168 about students requesting/using accommodations. The next most common broad domains included articles that were about programs and institutions (n = 396, 19.6%) and about faculty/instructors (n = 222, 11.0%).

Research methods

Seventy-five percent of the articles (n = 1,516) utilized original data and, of these, thirty-five (2.3%) presented multiple studies. The remaining 25% did not present original data (n = 505). Table 3 depicts the type of research methods used in those presenting original data as well as the type (e.g., program description, policy analysis) for those without original data. Of the 1,516 articles that presented original data, ~85% utilized qualitative methods (n = 579; 38.2%), descriptive quantitative methods (n = 558; 36.8%), or mixed methods (n = 150, 9.9%). Only 13.5% tested interventions using group (n = 159, 10.5%) or single subject (n = 45, 3.0%) designs.

Geographic location and setting

We coded the national location of each article that presented original data, and as some studies were conducted in multiple countries (n = 28; 1.8%), multiple countries could be selected. As depicted in Table 4, slightly over half of those presenting original data involved data collected in the United States (n = 773, 51%). The most common international locations in which data were collected included the United Kingdom (n = 124, 8.2%), Canada (n = 108, 7.1%), Spain (n = 69, 4.6%), and Israel (n = 56, 3.7%).

TABLE 1 The top 36 most common journals in which articles were published.

Journal	*n*	Percentage
Journal of Postsecondary Education and Disability	228	11.28%
Disability & Society	71	3.51%
International Journal of Disability, Development and Education	47	2.33%
International Journal of Inclusive Education	44	2.18%
European Journal of Special Needs Education	33	1.63%
Journal of Autism & Developmental Disorders	31	1.53%
Journal of Vocational Rehabilitation	26	1.29%
Career Development and Transition for Exceptional Individuals	24	1.19%
Journal of Attention Disorders	23	1.14%
Journal of Learning Disabilities	21	1.04%
Journal of Deaf Studies and Deaf Education	19	0.94%
African Journal of Disability	18	0.89%
Education and Training in Autism and Developmental Disabilities	17	0.84%
Journal of College Student Psychotherapy	17	0.84%
Journal of Visual Impairment & Blindness	17	0.84%
Journal of College Student Development	16	0.79%
Journal of Diversity in Higher Education	16	0.79%
Dyslexia	15	0.74%
Disability & Rehabilitation: Assistive Technology	14	0.69%
Inclusion	14	0.69%
Journal of Further and Higher Education	14	0.69%
Journal of American College Health	13	0.64%
Research in Developmental Disabilities	13	0.64%
American Annals of the Deaf	12	0.59%
Community College Journal of Research and Practice	12	0.59%
Scandinavian Journal of Disability Research	12	0.59%
Autism: The International Journal of Research & Practice	11	0.54%
Studies in Higher Education	11	0.54%
Disability and Health Journal	10	0.49%
Education Sciences	10	0.49%
International Journal of Special Education	10	0.49%
Journal of Chemical Education	10	0.49%
Journal of Developmental & Physical Disabilities	10	0.49%
Journal of Special Education Technology	10	0.49%
Learning Disability Quarterly	10	0.49%
Open Learning	10	0.49%

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TABLE 2 Article topics by PASS 2.0 domain.

Domain/subdomain	*n*	Percentage
Student-level	1,323	65.46%
Experiences	878	43.44%
Profiles	427	21.13%
Self-determination	212	10.49%
Learning/study skills	198	9.80%
Requesting/using accommodations	168	8.31%
Access	133	6.58%
Statistics	79	3.91%
Assistive technology	78	3.86%
Career development	72	3.56%
Mainstream technology	64	3.17%
Post-graduate experiences/outcomes	54	2.67%
Instrument development	49	2.42%
Meeting institutional requirements	13	0.64%
Other	115	5.69%
Program/institutional studies	396	19.59%
Program descriptions	164	8.11%
Programs for specific cohorts	101	5.00%
Institutional policies	85	4.21%
Program development	70	3.46%
Program policies and procedures	59	2.92%
Legal compliance (institutional)	51	2.52%
Universal design	40	1.98%
Program evaluation	38	1.88%
Diversity, equity, and inclusion	37	1.83%
Collaboration with campus staff	25	1.24%
Experiences	23	1.14%
Online/hybrid	20	0.99%
Legal compliance (program specific)	18	0.89%
Collaboration with faculty	16	0.79%
Program fit	13	0.64%
Post-graduate transition programs	11	0.54%
Professional development	7	0.35%
Programs for incoming students	3	0.15%
Other	75	3.71%
Faculty studies	222	10.98%
Faculty teaching	150	7.42%
Faculty knowledge	118	5.84%
Faculty development	41	2.03%
Other	15	0.74%
Professional staff	60	2.97%
Campus staff knowledge	34	1.68%
Campus staff practices	21	1.04%
Universal design	16	0.79%
Campus staff development	6	0.30%
Campus administration	5	0.25%
Other	13	0.64%
Fit not clear	20	0.99%

TABLE 3 Type of article.

Type of article	*n*	Percentage
Did not present original data	505	24.99%
Program description or practice paper	284	14.05%
Literature review	139	6.88%
Legal or policy analysis	41	2.03%
Meta-analysis or systematic review	26	1.29%
Other	15	0.74%
Presented original data	1,516	75.01%
Qualitative	579	28.65%
Descriptive quantitative	558	27.61%
Group design	159	7.87%
Mixed methods	150	7.42%
Single subject	45	2.23%
Instrument development	21	1.04%
Other	4	0.20%

Next, we coded the setting, or type of institution, from where the study participants were drawn. Because of the variation in the structure of higher education across countries, we coded articles from the United States as being from 4-year institutions, 2-year institutions, or career/technical schools, and collapsed all international studies into one pool. Of the articles where data was collected in the United States, the vast majority were collected only from 4-year colleges or universities ($n = 581$, 38.3%). One hundred articles presented data collected at both 4- and 2-year colleges/universities (6.6%) and 29 presented data collected solely at 2-year colleges (1.9%). Approximately half ($n = 782$, 51.6%) reflected data from international postsecondary institutions (see Table 5).

In general, there were no significant differences found between the United States based and international-based studies in regard to the percentage of the research methods used in the studies, although studies based in the United States tended to use more simple descriptive methods (42 vs. 32%) than international-based studies, and the international-based studies tended to use qualitative designs more than studies based in the United States (47 vs. 30%). In addition, United States based studies focused on

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TABLE 4 Geographic location of studies with original data ($n = 1,516$) with more than 10 articles.

Location	*n*	Percentage
United States	773	50.99%
United Kingdom	124	8.18%
Canada	108	7.12%
Spain	69	4.55%
Israel	56	3.69%
Australia	52	3.43%
South Africa	40	2.64%
Multiple countries	28	1.85%
Ireland	27	1.78%
China	25	1.65%
Turkey	16	1.06%
India	15	0.99%
Belgium	14	0.92%
Sweden	13	0.86%
Italy	12	0.79%
Taiwan	12	0.79%
Jordan	11	0.73%
Saudi Arabia	11	0.73%
Norway	10	0.66%

TABLE 5 Setting of studies that collected original data ($n = 1,516$).

Setting	*n*	Percentage
US 4- and 2-year colleges and universities	100	6.60%
US 4-year college or university only	581	38.32%
US 2-year college or university only	29	1.91%
International	782	51.58%
Not specified	55	3.63%
Career/technical schools	13	0.86%

programs (*PASS* Domain 2) at a higher rate than international-based studies (12 vs. 8%) while international-based studies focused on faculty (*PASS* Domain 3) than studies based in the United States (13 vs. 6%).

Participants

Of the articles presenting original data, 1,220 (80.5%) presented data with students as participants. Almost three-quarters of the studies with student participants (72.4%) had sample sizes of <100 (see Table 6). Articles were then coded to determine if a set of demographic items were clearly reported; specifically, the total number of students in each category needed to be presented, rather than reporting categories as a percentage. Nearly 90% clearly

TABLE 6 Characteristics of articles with student participants ($n = 1,220$).

Characteristic	*n*	Percentage
Total *N*		
0–9	288	23.61%
10–49	446	36.56%
50–99	149	12.21%
100–999	244	20.00%
1,000–9,999	60	4.92%
10,000+	18	1.48%
Unclear	15	1.23%
Race	296	24.26%
Black	211	17.30%
Asian	150	12.30%
White	272	22.30%
Hispanic	165	13.52%
Native American	59	4.84%
Pacific Islander	47	3.85%
Multiracial	128	10.49%
Not clear	15	1.23%
Categories collapsed	15	1.23%
Disability	1,083	88.77%
ADHD	272	22.30%
Autism	215	17.62%
Deaf-blindness	10	0.82%
Developmental	32	2.62%
Intellectual	119	9.75%
Hearing impaired/deaf	259	21.23%
Learning	405	33.20%
Mental health	289	23.69%
Multiple	113	9.26%
Orthopedic/physical	300	24.59%
Health	161	13.20%
Speech/language	58	4.75%
Temporary	2	0.16%
TBI/ABI	59	4.84%
Visually impaired/blind	267	21.89%
Other	72	5.90%
Unclear	9	0.74%
Categories collapsed	26	2.13%
Gender	843	69.10%
Third gender reported	59	4.84%
Class standing	406	33.28%
Graduate/professional included	244	20.00%
Graduate/professional unclear	242	19.84%

TABLE 7 Characteristics of samples with non-SWD participants ($n = 682$).

Characteristic	*n*	Percentage
Students without disabilities	355	52.05%
Faculty	192	28.15%
Accessibility services staff	95	13.93%
Professional staff	93	13.64%
Administrators	35	5.13%
Family	32	4.69%
Unclear	6	0.88%
Employers	3	0.44%
Collapsed across categories	3	0.44%
Other	47	6.89%

reported the disabilities present in the sample ($n = 1{,}083$; 88.8%). Gender was the next most clearly reported demographic category ($n = 843$; 69.1%). The number of transgender or gender non-binary students were specifically reported in 59 studies total (4.8%). Class standing was reported in 406 articles (33.2%) with graduate students being clearly included in 244 (20.0%). Race/ethnicity was clearly reported in 296 articles (24.3%).

A total of 682 studies had participants that were not students. As depicted in Table 7, non-disabled college students were participants in 355 studies (52.1%). Faculty ($n = 192$, 28.2%), accessibility services staff ($n = 95$, 13.9%), and campus professional staff ($n = 93$, 13.6%) were the most common non-student participants.

Discussion

The 2,021 articles reviewed from 2013 to 2022 represent an almost 200% increase over the 1,036 articles reviewed by Madaus et al. (2018) from 1952 to 2012. We can enthusiastically note that certainly, the secret is out on postsecondary education and disability. Below we break out the results by research question and examine trends over time as compared to the prior study. We encourage the reader to note that in many cases data across the last 10 years not only mirror prior trends, but sometimes approximate the same number of publications in a particular topical area in dramatically less time (i.e., $\frac{1}{6}$ the number of years)! Therefore, we not only discuss the numbers and percentages within the 10-year period, but we also explore and compare the total proportion as percentages to compare the two time periods (1952–2012 and 2013–2022).

Journals

As noted, articles were published in 636 unique journals. This continues to demonstrate a trend noted by Madaus et al. (2018) in the prior analysis that higher education and disability has a multidisciplinary interest and a resulting broader lens to explore important topics in the field. Given its mission to address disabled college students, college and university disability services, disability-relevant educators, and the disability studies field, *JPED* continues to be the primary outlet with 228 articles during the past 10 years. However, this only represents 11.3% of publications. In comparison, *JPED* published 27.3% of all articles in the prior review. As noted, the next closest journal, with 71 articles, was *Disability & Society*, a journal focused on disability studies and debate about human rights, discrimination, as well as policy and practices. This supplanted *JLD* as the second most common outlet ($n = 64$ over the prior period). In fact, *JLD* dropped to tenth in the current analysis with 21 publications. Rounding out the top four outlets are the *International Journal of Disability, Development and Education* ($n = 47$) which was not in the list of top journals previously, and the *International Journal of Inclusive Education* with 44 articles (2.2%) in comparison to 11 between 1952 and 2012 (1.1%). It is also noteworthy that two of the top four journals specifically target international audiences.

Topical areas by *PASS* domain

Students continue to be the primary topic, or unit of analysis of the studies examined, with 1,323 student-level studies. The proportion of articles about students grew from 42.5% in the prior review to 65.5% in the current review. Study subcategories are as follows: 878 articles concerning student experiences (66%), 427 addressing student profiles (32%), 212 examining student self-determination in higher education (16%), 198 on learning/study skills (15%), 168 on requesting/using accommodations (13%), and 133 on access (10%). This frequency is similar to the prior study, with 440 student level studies from 1952 to 2012 which included 260 student experience articles (59%), 147 student profiles (33.4%), 89 on access (20.2%), 50 on learning/study skills (11.4%), and 35 on self-determination (8%). Interestingly research in the field has delved more deeply into student self-determination and into requesting and using accommodations over the past 10 years, while continuing to grapple with understanding who are disabled students in postsecondary environments, and how we can best provide necessary skill instruction intended to promote independent success.

A smaller proportion of articles focused on accessibility programs in the current analysis (19.6%) vs. the previous analysis (28.7%). In the second version of the *PASS* taxonomy, articles about faculty and staff were disaggregated. If these two domains are combined allowing comparison with the original taxonomy, the proportions about faculty and staff are consistent across the two periods (13.4 vs. 14.0%).

Finally, creation of the domain structure by Dukes et al. (2017) was an attempt to bring clarity to the scope of research concerning postsecondary education and disabled students. It is appropriate to examine whether the then proposed *PASS* Taxonomy would remain an effective organizational framework as the field evolved. Interestingly, in the Dukes et al. (2017) study, 23 articles or ∼2%, did not fit the domain/topic structure. In comparison, only 20 articles did not fit within the domain structure in the current analysis, even with a 200% increase in the total number of articles, providing further content validity for the *PASS* Taxonomy

framework. The *PASS* Taxonomy was updated as part of this systematic review and details will be reported elsewhere.

Methodologies

As a discipline matures, expansion of analytic methods is common. In the last 10 years, the percentage of articles not reporting original data decreased to 25% (505/2,021) in comparison to 40.6% (n = 421/1,036) during the prior period. Articles without primary or secondary data tended to focus on program descriptions or practice papers (n = 284; 14%) or reviews of the literature (n = 139; 6.9%). Of the 75% of articles reporting original data (n = 1,516), 579 were qualitative (38%), 558 used descriptive quantitative methods (37%), 159 reported on group designs (10.5%), and 150 used mixed methods (9.9%). These stand in contrast to the 615 articles (59.4%) from 1952 to 2012 in which 180 were qualitative (29%), 336 were descriptive quantitative (54%), only 24 had group design studies (4%), and 62 (10%) used mixed methods. Clearly, the field continues to value rich descriptions of student experiences, with descriptive evidence much more common than interventional practice. The increase from 24 in the prior examination to 159 group design studies in the current analysis may indicate a shift toward more intervention research with improved control for independent variables across the spectrum of higher education settings.

Location of the studies

Geography

Geographically, and likely in part due to the study expectation to review articles published in English, the United States (773), the United Kingdom (124), and Canada (108) remain the most common study locations. There was a significant decrease in the proportion of studies from United States locations (71.4% in the original analysis compared to 51% in the present analysis). Concurrently, there was exponential growth in international locations with the current 782 articles representing 76 countries (with 28 articles across multiple countries) and previous 1952–2012 study (52 countries). This trend may signal the globalization of postsecondary education for disabled students, and as noted, two of the top four journals that published articles on disabled students in postsecondary education are specifically international in focus. The trends herald an opportunity to study the implications of disability policy, diagnosis, and service delivery more universally worldwide.

Type of institution

With respect to domestic (e.g., United States only) 4- vs. 2-year postsecondary institutions, in the most recent decade 581 studies were completed at 4-year institutions (88.1%), 29 at 2-year institutions (16.7%), and 100 collecting data from both 4- and 2-year institutions (12.9%). In comparison, Madaus et al. (2018) reported 399 at 4-year vs. (90.9%) and 118 at 2-year colleges in the United States (26.9%). Multiple studies demonstrate that most disabled students in the United States began their studies at 2-year colleges (Newman et al., 2011; Mamiseishvili and Koch, 2012; Gelbar et al., 2019). However, the data in both the prior and present analyses show a paucity of studies focused on disabled students at 2-year institutions. This represents a need for and an opportunity to conduct research focused on but not limited to students as well as administration, faculty, and staff.

Demographic variables presented

Regarding students, 1,220 articles presented some picture or perspective on the student experience, with the vast majority (n = 1,083, 81%) involving disabled students. This a positive finding and is indicative of our position that the study of postsecondary education and disability is insufficient without examination of the voice, impact, and experience of disabled students. More studies included transparent demographic information regarding the disabilities present in the sample (71.4 vs. 54.3% in the prior analysis). Among the disabilities included in study samples, the most common were specific learning disability (n = 405; 26.7%), orthopedic/physical disabilities (n = 300; 19.8%), mental health (n = 289, 19.1%), ADHD (n = 272, 17.9%), visually impaired/blind (n = 267; 17.6%), hearing impaired/deaf (n = 259, 17.1%), and autism (n = 215; 14.2%) with intellectual disability, a topic not addressed in the previous study representing 7.8% (n = 119) of publications in the past decade. These trends roughly mirror the prevalence of disability from the findings of the earlier study that included specific learning disability (33.3%), orthopedic/physical disabilities (13.2%); mental health [8.3% (previously coded as psychiatric)], ADHD (6.7%), visually impaired/blind (10.7%), hearing impaired/deaf (11.1%), and autism (2.1%). The noticeable difference is the increase in articles on intellectual disability, autism, ADHD, and mental health which reflects the changing landscape of higher education.

Interestingly, very low numbers of studies reported race in both the current analysis 24.3% (n = 296/1,220) and the previous analyses 19% (n = 85/448). Class standing was also underreported with 33.3% (n = 406/1,220) in the last 10 years and just 19.1% (n = 86/448) between 1952 and 2012. Finally, gender was reported in 69% (n = 1,220) of studies in the current analysis compared to 56.9% (n = 255/448). Unlike the previous study which only coded for either male/female, in the current analysis additional non-binary options for gender were included in 7% (n = 59/843) of studies reporting gender. Lack of data on race, class standing, and gender complicate research findings, even in group studies, because they do not allow for disaggregated findings by outcome measure and group, nor allow for longitudinal analysis to judge the differential impact of policies, programs, or interventions (Madaus et al., 2020).

Not all studies were about disabled students. Articles also focused on non-disabled students (n = 355; 52.1%), faculty (n = 192; 28.2%), accessibility staff (n = 95; 13.9%), professional staff (n = 93; 13.6%), and administrators (n = 35; 5.1%). A similar trend existed in the previous literature for non-disabled students (n = 97; 48.7%) as the largest group, almost as many examining faculty (n = 72; 36.2%), accessibility staff (n = 68; 34.2%) twice as many as professional staff (n = 29; 14.6%), and administrators (n = 11; 5.5%) rounding out the examination in the smallest group.

Implications

It is particularly encouraging that there are many more refereed publications addressing higher education and disability during the past decade as compared to the prior 60-year period. In fact, there has been a nearly 200% increase in the number of publications addressing the topic. Given that disabled students are attending college in greater numbers, reportedly up in the United States from 11% in 2011–2012 (National Center for Education Statistics, 2015) to 19% in 2015–2016 (National Center for Education Statistics, 2018), and the striking estimation that ∼75% of college students do not self-disclose their disability (Newman et al., 2011) the profound and rapid increase in the sheer number of publications appears quite promising. Moreover, the array of periodicals has expanded in this examination to include outlets that were not previously top publishers nor are some of the current popular periodicals primarily focused on higher education. To consider, apply, attend, and be successful in college, disabled students must have advocates, access to college preparatory coursework, and other college preparation opportunities (e.g., college and career counseling) as well. The literature to which education professionals and advocates outside of higher education and disability specifically are exposed must reflect this belief and explicate the support students need to actualize their postsecondary goals.

At the postsecondary level, in their guidance for the professionals that make up their organization, the Association on Higher Education and Disability (*AHEAD*) note that disabled student success is a campus-wide responsibility (Scott et al., 2023). Thus, postsecondary administrators, staff, and faculty also merit exposure to professional literature regarding disabled college students. As Peña (2014) stated, the topics addressed in professional periodicals "constructs" reality for the field (p. 31).

A second particularly encouraging sign is the volume of data-based studies has grown (n = 1,516) with the number of studies utilizing either mixed-methods, single-subject or group design also dramatically higher (n = 354). The largest percentage of data-based publications, however, remains the descriptive-quantitative type. Certainly, data describing, for example, the experiences of students is beneficial, however, while we might better understand the "who" or the student in this case, it is also necessary to examine the "what, where, how, and when" regarding practices, and particularly intervention practices relative to disabled college students. As Madaus et al. (2018) observed and we have again concluded, the literature base still does not have the depth to support the identification of effective practice resulting in successful student matriculation. The current and prior review reflect a synthesis of 70 years of conceptual and position papers, descriptions of programs and services, and a smaller set of single-subject, group-design and mixed-methods studies. These combined reviews are seminal guideposts for identifying opportunities to utilize the practices described and impact research related to the education of and subsequent outcomes for disabled students.

In concert, with the lack of depth mentioned earlier, research rigor remains a genuine challenge. Given the noted limitations regarding universal clarity around characteristics and diagnostic criteria across the study corpus, more information about study participants is warranted. Specifically, throughout the literature, ethnicity, race, and gender were not consistently provided, nor inclusive options reliably available to accurately discern participant characteristics. Within the changing world of higher education, it is essential individuals be able to reflect their identities as both a marker of human dignity and to shed additional light on how policies, programs and practices might be impacting their development. The reader is pointed to the recently promulgated *Research Guidelines for Higher Education and Disability* (Madaus et al., 2020). The *Guidelines*, while not proscriptive, encourage research professionals to engage in methodologically consistent practices, appropriate sample and geographic descriptions, and so on. Summaries and suggestions relative to commonly used methodologies are proffered, making the *Guidelines* a useful tool for both practicing and prospective research personnel. In sum, we are compelled to share a remark by Tankersley (2013) who concluded "If research is not conducted properly, the results can be misleading at worst, or at a minimum can be meaningless" (p. 120).

A particularly telling shift in the literature corpus is the 1,400% increase in international publications addressing higher education and disability. This profound increase in literature reflects burgeoning growth in the number of international disabled students pursuing higher education (Moriña, 2017) likely due, in part, to cultural shifts in the understanding of disability (Fernández-Batanero et al., 2022) and changes in legislation across the globe (e.g., Tsu-Hsuan and Fried, 2023; Zhang et al., 2023). Madaus and Dukes (2023) stated that international professional literature provides "...a useful starting point for cross national examinations, comparisons, and discussion points about state-of-the-art practices in higher education accessibility and service delivery support for disabled students" (p. 5, 6). It is our belief that researchers and practitioners from outside North America and the UK possess knowledge of both practice and policy that can inform and thus improve the efforts of others worldwide. We are confident our domestic and international colleagues can utilize the policies and practices described and studied in the international literature base for reflection, the development of unique program and service initiatives, as well as collaborative research opportunities. Examples of emerging international practice include: the use of virtual reality and the development of artificial intelligence powered mobile apps (Fichten et al., 2023), the inclusion of intellectually disabled students in the higher education international arena (Rillotta and O'Donovan, 2023), formal mentorship of disabled graduate-level and post-doctoral students (Sukhai and Latour, 2023), and approaching "accessibility" as a field of study (Vukovic, 2023).

As noted, Madaus et al. (2018) did not report on the literature about intellectually disabled students pursuing postsecondary education as it was a nascent field in 2012, the final year in which data was collected as part of that review. In fact, federally funded baseline data regarding their participation in higher education was not reported until 2012 (Grigal et al., 2012). During the past dozen years, access to postsecondary education for this emerging population has grown dramatically not only in the United States, but worldwide (O'Brien et al., 2019). To date, more than 6,000 intellectually disabled students have participated in college in the United States (Grigal et al., 2021), yet IPSE programming is only available at a little more than 4% of higher education institutions in the United States (Grigal et al., 2019). As with

other disability populations attending college there are many outstanding questions. For example, does the length of the program influence student outcomes? Does a fully vs. a partially inclusive program result in better student outcomes? Does a program that provides a residential life component positively influence student outcomes? The United States Department of Education has awarded substantial federal funding, over 100 million US, to support IPSE (Grigal et al., 2021), the field is reflected in the Higher Education Opportunity Act of 2008, and, recently, accreditation standards and an accreditation body have been developed (Grigal et al., 2023). The need to continue examination of policy and practice specific to IPSE is clear.

We are encouraged by the federal support in the United States for the National Center for College Students with Disabilities (NCCSD) and the National Disability Center for Student Success (NDCSS). The NCCSD is designed to provide information and technical assistance to any stakeholder with an interest in disability and higher education. In addition, the project conducts relevant research and serves as a clearinghouse. Lastly, NCCSD is charged with reporting on the status of disabled college students to the U.S. Department of Education. The NDCSS has as its focus the development of a research-base to improve disabled student inclusion, degree completion, and workforce readiness. The NCCSD and NDCSS, in addition to other researchers, should consider the *PASS* Taxonomy (Dukes et al., 2017) and its content as a framework for identifying gaps in the field when contemplating and selecting relevant higher education and disability issues to examine. While we applaud the U.S. Department of Education financial support for NCCSD and NDCSS, given the number of disabled students pursuing higher education and the expansive nature of questions to be answered regarding their participation in college, we advocate for further federal financial resources to expand this work.

Limitations and methodological considerations

Though we have intended to provide a comprehensive overview of the literature related to disabled postsecondary students, this synthesis also has several important limitations that can arise from the review process. First, the reviewed literature may be limited in scope. We have made every attempt to review the entirety of extant literature related to postsecondary education for disabled students by referencing both peer-reviewed articles and dissertation abstracts. Additionally, as each database is unique in its coverage of the literature, we employed multiple search engines to provide a comprehensive scope to our review. Second, we are limited by publication bias. Our review primarily relies on published works (in English), which may introduce bias due to the preference for publishing positive results or significant findings. Due to the desire to inform the scholarly and practice community about the state of postsecondary education for disabled students, including how to improve services and remove roadblocks, we believe the search process used was appropriate. Additionally, we attempted to avoid bias by allowing for heterogeneity of research study designs, including a variety of research methodologies.

Third, we are beholden to participant descriptions and selection in the literature which may introduce unintended threat to external validity as the samples may not always be representative of the target population of interest. This is particularly relevant given our desire to not limit the geographical scope of the study to avoid Western bias. That said, disability diagnosis is determined with variation across international boundaries. Finally, we acknowledge that despite our best efforts to provide a comprehensive review of the literature, it is entirely possible that due to limitations in search terms, database selection, or search filters that we may have missed individual articles. To mitigate this risk during the discovery process, 25% of the articles were double coded, with disagreements resulting in coding by a third member of the research team to ensure accuracy in the article selection process from among the corpus of articles available.

Recommendations for future research

While the current analysis found several promising areas of progress in the field's research base, it also found gaps that can be addressed with future research. For example, while barriers to access have been consistently examined, the limited number of research-based articles in total, particularly those with quasi-experimental designs, allows that even this most consistently explored topic is limited. Moreover, future research should investigate moving beyond access to include improvements in the process and outcomes for disabled students. For example, interventions related to academic, social-emotional, mental health, and other identified barriers are warranted. Longitudinal studies tracking students as they transition from secondary to postsecondary settings must continue to follow students as they engage in the world of work. Such exploration is necessary to determine the efficacy of university programs, but also identify the impact and implications of legislation and other policy options in various countries.

Regrettably, a primary research question related to synthesizing the evidence-based practices remains unanswered due to the limited number of empirical studies. To guide educators and policymaker decision making, significantly more empirical research is necessary. Within the United States, this may occur with specific federal funding through mechanisms such as the Institute for Education Sciences (IES), but also through federal agencies like National Institutes for Health and Veterans Affairs. We encourage our international peers to consider available government funding for disabled student programs and supporting research, and to advocate for additional funding opportunities. Historically, increased funding has served as a catalyst in the research community to accelerate knowledge production for targeted populations.

In addition, we encourage practitioners to partner with research faculty and research centers across the country to publish results with desegregated data for disabled students. Disability service staff engage with, and problem solve for disabled students daily. They are in communication with admissions, housing, student affairs, and academic units. To capture applied lessons learned, surface critical research questions, and design robust and meaningful

studies, it is necessary to partner with research faculty and research centers across the country to publish results with desegregated data for disabled students.

Our hope is that future research from increased funding and inter (and intra-) university collaborations will provide critical guidance regarding effective instructional strategies, curriculum design, and assessment methods. This will have the additional benefit of guiding postsecondary faculty and staff professional development. Future research might also include multi-cohort longitudinal studies, consistent measures (including academic, student engagement, and social-emotional wellbeing) related to inclusive education, efficacy and access to assistive technology (especially as technology changes such as word prediction and other Artificial Intelligence advancements increase the ability of students to communicate and complete curriculum related communication), family involvement, consideration of culturally responsive practices, investigation of peer interactions and social inclusion, and previously stated examinations of policy and systems level variables.

These implications and recommendations for future research highlight critical next steps in addressing the postsecondary education of disabled students. Further, by addressing these research gaps, as in previous research concerning disabled students, scholars may contribute to improvements in inclusive education and equitable opportunities for other students.

Conclusion

The purpose of this systematic review was to holistically examine the research literature concerning the education of disabled students. Specifically, this project examined the literature during the 10-year period from 2013 to 2022 since Madaus et al. (2018) last synthesized the postsecondary literature with an eye toward where relevant articles on disabled college student services were published, specific units of analysis (i.e., student experiences, program level examination, assessment tools, etc.), the extant study samples were described, location as well as geographic setting, and what research methods were employed. Moreover, the current results allow comparison of trends since the origination of the relevant published literature in 1952 with current trends in the field as a potential measure of field development. The latter purpose is particularly critical since Madaus et al.'s (2020) call for research guidelines was embodied by leaders in the field in 2020's *JPED* article *Research Guidelines for Higher Education and Disability*. Examining trends in the field as outlined above is one way to consider if the field is on track to improve outcomes for disabled students and the professionals who work with them.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

JM: Conceptualization, investigation, Writing – original draft, Writing – review & editing. NG: Conceptualization, investigation, Formal analysis, Writing – original draft, Writing – review & editing. MF-L: Conceptualization, investigation, Writing – original draft, Writing – review & editing. LD: Conceptualization, investigation, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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